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From: David Engel

Sent: Thur 1/28/2016 10:24:01 PM

Subject: Fwd: Re: Appropriate GAC filter performance standard

Tom:

Below please find the analysis of Dr. Robert Michaels with respect to setting a Detection Limit/Performance Standard for the treatment systems at the Hoosick Water Treatment Plant. As we have discussed, there is no reason why the Hoosick system should be held to a more lax standard than those systems in Ohio and West Virginia that have been affected by PFOA.

Further, and without going into a full analysis on the point, with the designation of PFOA as a hazardous substance in NY and the designation of Saint-Gobain as a "listed site", there appears to be ample basis for compelling Saint-Gobain to go well beyond the limited agenda presently contemplated in the "interim agreement".

This morning, I had an extensive discussion with Chris Gibson. We discussed in detail the contemplated scope of the interim agreement. Based on Gibson's version of matters, that agreement will not include any indemnification running from Saint-Gobain to the Village. We believe that such an outcome would be a mistake and leave the Village exposed to claims for which Saint-Gobain bears responsibility.

In our discussions, Gibson stated that Saint-Gobain would obtain the filter systems for the Village, apparently under lease arrangements with Calgon, but actual operational responsibility would rest with the Village. Gibson also indicated that the Village would either take title or act as the lessee with reimbursements coming from the Company. That approach also raises a variety of concerns with respect to potential liability falling on the Village as opposed to Saint-Gobain. In this regard, guidance may betaken from the approach followed in the Ohio Valley communities where DuPont owned and operated the systems and was responsible for operating the systems to the lowest possible detection limit. Given the gross disparity in economic resources between the Village and Saint-Gobain, that approach should be followed here.

There are other matters that must be included in an agreement at this time. To that end, I reiterate the request of Healthy Hoosick Water (HHW) for a meeting. As previously discussed, we are prepared to meet this weekend.

Finally, throughout the course of this matter, we have been concerned about an apparent pattern of disinformation or misinformation being disseminated by Saint-Gobain. Specifically, the Company has put forth the claim with some variations that goes like this: Saint-Gobain never used PFOA-containing materials in Hoosick or phased out such usage early in the last decade. There was a purpose in telling that story; the purpose was to make the claim that Saint-Gobain had no responsibility for the Hoosick contamination except by reason of its ownership of the plant site. It appears that the Mayor and others accepted this narrative. We know that those

claims and tales told by Saint-Gobain are false. We have statements from various employees in which those employees specifically state that PFOA was still in use within the last three years. A former supervisor stated that PFOA was in use as late as 2014 and that Saint-Gobain actually sought PFOA- containing PTFE mixtures in order to best meet customer demands for certain products. Those statements on their own could be dismissed as reflecting nothing more than the resentments of former employees. But, we have also seen a Saint-Gobain authored email that explicitly acknowledges the use of PFOA-materials through 2014. Finally, our experts tell us that the finding of 18,000 PPT in an on-site groundwater sample is consistent with recent usage and on-site disposal or releases of PFOA.

Please understand that we raise these matters and issues with the goal of obtaining the best possible outcome for the Village and its residents as soon as possible.

In the end, any agreement between the Village and the Company must be subject to public review and comment. This is necessarily the case for a host of reasons which we are all aware of. The Village Board should welcome HHW's involvement in the process because our involvement helps to assure that the best agreement is reached and is accepted by the public.

Please call me to discuss when a meeting can be held between HHW and the Village leadership and to discuss any questions you have as to this email.

Detection Limits and Performance Standards for Treatment Systems at the Villa		
Dave Engel		
Thanks.		

Detection Limits and Performance Standards for Treatment Systems at the Village of Hoosick Falls Water Treatment Plant

This Memo evaluates the issue of determining an appropriate performance standard for the planned granular activated carbon (GAC) filter to be added to the Village of Hoosick Falls Water Treatment Plant to remove perfluorooctanoic acid (PFOA). The proposed GAC system design consists of two carbon beds operating in series. The performance standard refers to the maximum PFOA concentration in finished water that will be allowable. The primary criterion for system design, in addition to feasibility, must be reliable, long-term protection of the health of consumers of the finished water, including sensitive subpopulations such as pregnant women and infants.

A performance standard of 20 ng/L (parts per trillion, ppt) was the initial proposal submitted to the Village. The claim has been made that a more stringent (lower) performance standard would be infeasible. This claim is false based upon abundant experience in the operation of GAC filters for removal of PFOA, both in the U. S. and abroad. For example, PFOA routinely is removed from water serving Little Hocking, Ohio. This facility is especially notable because, like the GAC system proposed for the Village, the Little Hocking system is configured with

two carbon bed units operating in series.

Dual units of two in-series carbon beds operate in Little Hocking. PFOA generally is undetected in finished water produced by each of the two units. The detection limit (DL) is indicated with each reported sample value, and most commonly it is the nominal DL of 1.7 ppt for U. S. EPA analytical Method 537, which is used widely, including in the Village of Hoosick Falls.

EPA Method 537 permits procedural alterations to achieve a more stringent DL if desired. That is, 1.7 ppt is not the lowest feasible DL applicable to routine PFOA analysis in finished drinking water. The Little Hocking database, for example, includes multiple samples in which PFOA was undetected at a DL of 1.0 ppt. If performance at that more sensitive level can be achieved in Little Hocking, it unquestionably can occur in Hoosick Falls.

The performance standard of 20 ppt proposed for the GAC system is excessive relative to the criterion of feasibility. This is fortunate, because it must be improved significantly to meet the primary criterion of system design, which is reliable, long-term protection of public health. Indeed, the U. S. EPA Provisional Health Advisory of 400 ppt is too lenient for use in the Village and, according to EPA, is applicable only to short-term exposure commensurate with the duration of exposure used in the study on which it was based: 17 days. In contrast, the Village has experienced unabated exposure to PFOA over a period of years almost certainly, and possibly over a period of decades. Given the long term exposure to PFOA that has occurred in Hoosick Falls, it is vital that the performance standard be set at a value that reflects the lowest possible exposure on a going-forward basis. PFOA is persistent in the human body and is only removed through excretion over an extended period of time. Given the health risks associated with PFOA exposure, it is crucial that PFOA levels in the Hoosick population be reduced as quickly as possible. This goal is best met by specifically establishing the most stringent "standard" possible for PFOA in the Hoosick water supply. Accordingly that standard should be equivalent to the most stringent detection limit that has been observed and followed in other PFOA water supply contamination situations.

The findings made above justify four primary conclusions drawn below regarding the performance standard that is appropriate for the GAC filter planned for the Village of Hoosick Falls:

- --1. All routine analysis for PFOA should be conducted via EPA Method 537 and adhere to its nominal method detection level of 1.7 ppt or better,
- --2. All data produced by such analysis should be placed in the public domain,
- --3. The proposed performance standard of 20 ppt for PFOA in finished water is unacceptably high, and
- --4. The GAC unit should be designed to reduce PFOA in finished water to the minimum concentration found to be feasible for routine sampling, which is in the range of 1.0 to 1.7 ppt.

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